

Remarks

I. Status of the claims

Claims 1-18 are currently pending. Claims 1-12 are withdrawn. Claim 13 has been amended to specify the composition of the light-shielding component, and to further specify the optical properties of the sheet made from the resin composition. Support for this amendment may be found on pages 5 and 8 of the specification. New claims 14, 15, 17 and 18 relate to additional embodiments of the invention where the composition of the light-shielding component is further specified. New claim 16 recites the preferred groups for the thermoplastic material. Support for the new claims may be found in the original claims 6, 7, 9 and on pages 9 and 11 of the specification.

No new matter has been introduced through these amendments and new claims.

II. Rejection under 35 U.S.C. § 102(b)

The examiner has rejected claim 13 under 35 U.S.C. § 102(b) as being anticipated by U.S. Statutory Invention Registration No. H1120 to Casey et al. (“Casey”) as evidenced by the Handbook of Thermoplastic Elastomers (“the Handbook”). According to the examiner, Casey discloses a method of processing recyclable thermoplastic material where at least one filler is added to the recyclable thermoplastic, but Casey is silent on the specific amounts of the filler. By citing the Handbook, which describes that 0.05-1.5 % of stabilizers may be added to thermoplastic resins, the examiner attempts to prove that the claimed range of non-thermoplastic solid foreign material is inherent in Casey. The examiner states that since Casey’s composition and the claimed composition are the same, the claimed optical properties of the claimed resin composition are inherently present in Casey’s composition. Applicants respectfully traverse this rejection.

Before addressing the distinction between the claimed invention and the prior art references, Applicants respectfully submit a detailed description of the invention defined in the amended claim 13 to assist the examiner in understanding the claimed invention.

Recently, it is desired to reuse waste resin products (waste plastic material) for producing new resin articles, so as to obviate environmental disruption. One of troublesome

problems in the reuse of waste resin products resides is that most of waste resin products contain non-thermoplastic solid foreign materials such as pieces of plant, pieces of metal, pieces of cured resin, or sand. If the non-thermoplastic solid foreign materials are transferred into the new (reclaimed) resin articles, the reclaimed articles are not favorably accepted by consumers because the solid foreign materials in the reclaimed articles are visually noticed. The non-thermoplastic solid foreign materials contained in the waste resin products can be removed prior to the reuse of the waste resin products. However, the removing procedure is inconvenient and cost-increasing in industry. Therefore, it is desired to improve the known waste resin product-reusing procedure so that the non-thermoplastic solid foreign materials in the reclaimed resin articles can be well shielded from visual notice, when the reclaimed resin article is produced from the waste resin products containing the non-thermoplastic solid foreign materials.

The inventors of the claimed invention have studied known waste resin product-reusing procedures, and made an inventory discovery relating to the reclaimed resin composition. It was discovered that the claimed invention has a property that the non-thermoplastic solid foreign materials being transferred to the resin articles are well shielded from visual notice, when a combination of light-shielding components comprising a white pigment, a colored pigment or a black pigment is incorporated into the pulverized waste resin products, before melting under heating, under such conditions that the reclaimed resin composition shows a lightness in the specific range when it is molded to a 3 mm thick sheet and a light transmittance in the specific range when it is molded to a 50 μ m thick sheet, and further satisfies the condition that a relationship between the lightness and light transmittance is in the specific range.

As noted above, Applicants have amended claim 13 in this response to recite that the light-shielding components of claim 13 comprise a white pigment, a colored pigment, a black pigment or combination thereof. The amended claim 13 also further recites that when such light-shielding components are use in the waste resin-reusing process containing non-thermoplastic solid foreign materials, the resulting resin-made molded sheets show a lightness in the range of 30 to 90, a light transmittance in the range of 15 to 70%, and a relationship between the lightness and light transmittance satisfying the following condition: $1300 \leq (A \times B) \leq 4000$, wherein A means a lightness of a sheet of 3 mm thick having been made of the resin composition, and B

means a total light transmittance in terms of % of a sheet of 50 μm thick having been made of the resin composition.

Casey is directed to a method for processing recyclable polymeric materials to provide a product having improved handling properties, such as a facilitation of material feeding into the melt processing equipment, a lowering of melt processing temperatures, a reduction of back pressure, a high throughput and improved physical and mechanical properties of fabricated goods. See Casey, col. 1, line 67 to col. 2, line 4. These improved handling properties are mainly imparted into the recyclable materials by the addition of a relatively lower shear viscosity polybutylene rather than by fillers. See Casey, col. 1, line 55 to col. 2, line 4.

Casey discloses that the fillers in general may be optionally added to the recyclable material. As for the fillers, inorganic fillers such as calcium carbonate, talc, carbon black, and pigments may be used. See Casey, col. 5, lines 9-10. In this regard, calcium carbonate and carbon black are merely listed as a general choice of fillers together with other 9 genres of filler materials. See Casey, col. 5, lines 1-16. Casey further describes that the filler is added more preferably in an amount of 5 to 15 wt.%. See Casey, col.5, lines 61-63. However, Casey does not teach or suggest that any specific fillers having different natures should be employed. Nor does Casey teach or suggest that certain combination of fillers may be used. Therefore, Casey could not possibly teach or suggest the specific benefits or properties that the specific fillers or combination thereof confers to the reclaimed resin composition of the claimed invention, i.e., the reclaimed resin composition can show good appearance even if non-thermoplastic solid foreign materials are transferred into the molded articles from the starting waste materials, if specific fillers in combination are incorporated into in the recyclable polymeric material under such condition that the reclaimed resin composition shows specific optical characteristics when being molded to specific-thickness sheets. Therefore, Casey does not teach or suggest Applicants' claimed invention.

Moreover, Applicants submit that the comparison of the amount of fillers used in Casey and the Applicants' claimed range of non-thermoplastic solid foreign material, made by the examiner in combination with the teaching of Handbook, is incorrect and irrelevant to the patentability of the claimed invention. Casey's composition does not contain the claimed non-

thermoplastic solid foreign material. Therefore, the claimed range of non-thermoplastic solid foreign material is not inherent in Casey. The amount recited in claim 13 (0.001 to 2 weight %) refers to the non-thermoplastic solid foreign material that the pulverized waste plastic material contains, not fillers. Fillers, as disclosed in Casey, are useful component in the recyclable polymeric materials, may be optionally added prior or during processing, and can include calcium carbonate, talc, carbon black, pigments, and engineering thermoplastics. See Casey Col. 5, lines 1-16 and claim 2. This is not the non-thermoplastic solid foreign material referred to in Applicants' claimed invention. The non-thermoplastic solid foreign material in the claimed invention has been discussed clearly everywhere in the specification. For example, in lines 6 to 12, page 3 of the specification:

Accordingly, it is an object of the invention to provide a resin composition employable for manufacture of synthetic resin products having good appearance from waste plastic materials comprising a thermoplastic resin and a small amount of incompatible solid foreign materials such as pieces of plant, pieces of metal and metal oxide.

In addition, the examiner also states that the addition of any amount of filler, such as carbon black, will inherently give Casey's polymer the same optical property as claimed by Applicants. See Office Action, Page 4. Applicants respectfully submit that this statement is incorrect. As discussed above, the claimed resin composition is distinct from Casey's composition. Because the chemical compositions are different, the examiner has no grounds to conclude that Casey's polymer has the same optical properties as the claimed resin composition. In fact, the Ako Declaration submitted by Applicants shows that the recyclable resin material disclosed in Casey does not possess the specific optical characteristics claimed in the amended claim 13, when the resin material is molded to sheets with the claimed thickness, and thus made molded sheets do not have good appearance if the starting resin waste material contains a small amount of the non-thermoplastic foreign materials.

For the reasons discussed above, Casey, taken alone or as evidenced by the Handbook, does not anticipate nor would it render obvious Applicant's invention as recited in claims 13-18. Accordingly, Applicants respectfully request that the examiner withdraw this rejection under 35 U.S.C. § 102(b).

III. Declaration under 37 C.F.R. § 1.132 by Tatsushi Ako

Applicants submit a Declaration under 37 C.F.R. § 1.132 by Tatsushi Ako (“Ako”). Ako has performed comparative experimental runs to check whether or not the addition of the inorganic filler disclosed in Casey produces a reclaimed resin composition, when the resin composition is molded to sheets having the specific thickness, showing specific optical characteristics.

The Declaration summarizes the comparative experimental runs by addition of the inorganic filler disclosed in Casey to the reclaimed resin composition, in the same manner as described in Examples 1 to 3 set forth in the specification. The comparative results show that the recyclable resin material disclosed in Casey does not possess the specific optical characteristics claimed in the amended claim 13, when the resin material is molded to sheets having the claimed thickness. Thus made molded sheets do not have good appearance if the starting resin waste material contains a small amount of the non-thermoplastic foreign materials.

This Declaration supports the remarks set forth in section II, and Applicants’ remarks regarding the patentability of the claimed invention over Casey in combination with the Handbook.

IV. Conclusion

Applicants respectfully request reconsideration of this application and allowance of the pending claims in view of the above remarks.

Except for issue fees payable under 37 C.F.R. §1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 50-0310.

This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. §1.136(a)(3).

Respectfully submitted,
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